5. Regulatory Requirements

Regulatory requirements would vary depending on the method of discharge. It is possible that more than one method of discharge would be required to meet project disposal requirements. As a result, different effluent and discharge standards may apply according to the disposal method selected. In turn, these discharge standards would drive the level and type of treatment required.

This Section discusses likely regulatory restrictions for discharge of treated wastewater to land, to surface water, and for reuse. This Section includes a general discussion on the regulatory structure of the existing DWTP and IWTP discharge permits. Possible discharge requirements for each of the candidate discharge strategies are reviewed as they potentially pertain to the LTWMP.

5.1. Existing Discharge Permits

The DWTP and the IWTP are currently permitted by the RWQCB through WDR permits. These permits would have to be amended when the LTWTP is implemented because it is anticipated that there will be significant modifications in wastewater treatment and disposal strategies.

5.1.1. Nitrogen Limits

Comments received from the RWQCB (November 14, 2002) suggest that any new WWTP would have to comply with the most stringent nitrogen limits as established in the local groundwater basin plan for any form of disposal. This suggestion was clarified in a subsequent letter from the RWQCB dated January 28, 2003. It is included in **Appendix F** and is summarized below.

Table 5-1: Expected Nitrogen Discharge Limits

Type of Discharge	Estimate of Expected Nitrogen Discharge Limits
Surface Water	0.22 to 0.9 mg/L
Percolation Bed	5 mg/L
Agricultural Irrigation	Will depend upon the manner in which irrigation takes place. • Probably higher if users were required to incorporate Nitrogen concentrations in recycled wastewater when calculating fertilizer application rates. • If irrigation water subsequently discharges to surface water as irrigation tail water, surface water discharge limitations may be applicable. • If Nitrogen concentrations in irrigation water are expected to impact groundwater, then groundwater discharge limitations may be applicable.

5.1.2. Domestic Wastewater Treatment Plant

Currently, percolation beds are used to discharge all DWTP effluent. Discharge of effluent at the DWTP percolation beds is authorized and regulated by WDR Order No. 87-47, issued by the Central Coast RWQCB in March 1987 **(Appendix E),** following a plant expansion that increased the plant's capacity to 2.69 MGD ADF. The WDR has not been revised since 1987 because there have not been any major plant expansions or modifications – except for construction of the new headworks and the DPMC modifications. These improvements were required to satisfy provisions of the Cease and Desist Order R3-2002-0105 (**Appendix B**).

The existing WDR for the DWTP sets limits on flow and includes a few numeric limits for dissolved oxygen (DO) in the surface zone of the ponds and effluent pH. There are no numeric limits set for any other parameters, including BOD, TSS, TDS, nitrate, boron, chlorides, sodium, and/or metals. There are

however discharge prohibitions and groundwater impact limitations related to some of the aforementioned parameters. The following is a summary of the existing effluent prohibitions and specifications abstracted from WDR Order No. 87-47:

- Discharge of any wastes, including overflow, bypass, seepage, and over spray, to the San Benito River, adjacent drainages, and adjacent property is prohibited.
- DO in the surface zone of the ponds shall be at least 2.0 mg/L.
- Effluent pH shall be between 6.5 and 8.4.
- Discharge of less than primary-treated effluent to the percolation beds is prohibited except during maintenance.
- 30-day ADF through the DWTP cannot exceed 2.69 MGD.
- Percolation beds must be operated on a 7-day cycle - 6 days of water application and 1 day of drying.
- The discharge cannot cause the nitrate concentration in the groundwater down-gradient of the discharge area to exceed 5 mg/L or background levels, whichever is lower.
- The discharge cannot cause a statistically significant increase in mineral constituent concentrations in underlying groundwaters.
- The discharge cannot cause concentrations of chemicals and radionuclides in groundwater to exceed statutory limits.

Over time, the capacity of the DWTP's percolation beds diminished to the point where the ability of the DWTP to adequately and reliably handle domestic wastewater flows became compromised. Consequently, the City explored emergency diversion of domestic wastewater for treatment and discharge at the IWTP, which had available treatment and discharge capacity. In November 1998, the City requested approval to divert domestic wastewater flow to the IWTP. The RWQCB granted the City's request and subsequently adopted Order 00-020 revising WDR requirements for the IWTP in May 20, 2000, allowing temporary diversion of domestic wastewater to the IWTP. A copy of Order 00-020 is included as **Appendix A**. Some conditions of the order are listed below:

- Domestic wastewater can be diverted only on a temporary basis until additional capacity could be added to the DWTP.
- Further discharge or diversion of domestic wastewater to the IWTP is prohibited after June 30, 2005 (subsequently revised to December 31, 2007).
- A five-year time schedule for development and implementation of the LTWMP is required.
- By May 20, 2002, the City was required to submit a fully developed LTWMP to RWQCB outlining how that implementation schedule was to be met.
- The City is required to fully implement the LTWMP by May 20, 2005 (first revised to October 15, 2005 and subsequently revised to December 31, 2007).

The extent of the diversion capacity is summarized in **Table 1-1**.

During mid-2001 and early 2002, discharges at the IWTP and DWTP resulted in a violation of each facility's WDRs. From June 1, 2001, to March 31, 2002, it is estimated that 6,100 gallons of treated undisinfected wastewater seeped into the inactive San Benito River channel from Percolation Bed 13 of the DWTP. On May 6, 2002, the levee of IWTP Pond 6 was breached, discharging an estimated 15 MG

of treated undisinfected domestic wastewater to the San Benito River channel. In addition, the RWQCB staff became concerned that plant influent flow measurements may not have been accurate. The RWQCB issued Cease and Desist Order No. R3-2002-0105, included in **Appendix B**, on October 17, 2002, listing interim milestones for achieving compliance, including:

- By November 2002 (subsequently revised to March 3, 2003), the City must award a contract for construction and installation of equipment to reduce TSS concentrations in treated effluents discharged to the percolation beds of the DWTP.
- By July 2003 (subsequently revised to August 1, 2003), the City must complete construction and initiate use of new treatment plant headworks at the DWTP to accurately measure influent flow volumes and ensure prevention of the emission of nuisance odors at the headworks.

5.1.3. Industrial Wastewater Treatment Plant

Currently, percolation beds are used to discharge all IWTP effluent. Discharge of effluent at the IWTP percolation beds is authorized and regulated by WDR Order 90-90, issued by the Central Coast RWQCB in July 1990 **(Appendix D)**. This WDR was later revised by WDR Order 00-020 **(Appendix A)**, to accommodate the City's request to divert domestic wastewater flows and utilize available treatment and discharge capacity at the IWTP. Temporary diversions from the DWTP were granted to provide enough time for the City to implement the LTWMP and must cease by June 30, 2005 (subsequently revised to December 31, 2007).

WDR Order 90-90, and later WDR Order 00-020, set limits on flow and includes a few numeric limits for salinity control and effluent pH. There are no numeric limits for any other parameters, including BOD, TSS, nitrate, boron, and/or metals. There are, however, discharge prohibitions and groundwater impact limitations related to some of the aforementioned parameters. The following is a summary of the existing effluent prohibitions and specifications abstracted from WDR Order 00-020:

- Average day monthly cannery wastewater flows shall not exceed 3.5 MGD during canning season (mid-June through mid-October) and 0 MGD during non-canning season.
- Average day monthly domestic wastewater flows shall not exceed 1.52 MGD during non-canning season, and phased during canning season.
- 30-day average settleable solids shall be less than 2.5 mg/L.
- Annual average TDS shall be less than 1,415 mg/L.
- Annual average sodium shall be less than 250 mg/L.
- Annual average chloride shall be less than 240 mg/L.
- DO in the aerated and discharge ponds shall not fall below 2.0 mg/L and 1.0 mg/L, respectively, at any time.
- Effluent pH shall be between 6.5 and 8.4.
- The discharge shall not cause a statistically significant increase in mineral constituent concentrations in underlying groundwaters.
- The discharge shall not cause nitrate concentrations (as Nitrogen) in the groundwater down gradient of the discharge area to exceed 5 mg/L.

5.2. Discharge to Land

Land discharge of wastewater includes percolation and spray field irrigation. Principal factors affecting effluent limitations for land discharge are the nature of soils and groundwaters in the discharge areas and, where irrigation is involved, the nature of crops. Wastewater characteristics of particular concern are total salt content, nitrate, boron, pathogenic organisms, and toxic chemicals. Where percolation alone is considered, the nature of underlying groundwaters is of particular concern.

Nitrate removal is required in many cases where percolation is to beneficial groundwater basins. Percolation basins operated in alternating wet and dry cycles can provide significant nitrogen removal through nitrification/denitrification processes in the soil column. Finer textured soils are more effective than coarse soils.

Vegetative uptake will utilize soluble nitrates, which would otherwise move into groundwater under a percolation operation. Demineralization techniques or source control of TDS may be necessary in some areas where groundwaters have been or may be degraded. Use of effluent for crop irrigation may be rejected based on excessive salinity, boron, or sodium.

According to the Central Coast RWQCB Basin Plan, "land discharge of wastewaters in the Hollister region must be monitored carefully to assure groundwater quality is protected. Source control of salt must be stressed to reduce effluent salinity to levels acceptable for discharge to local groundwaters."

5.2.1. Discharge by Percolation

Discharge requirements for percolation generally require a secondary level of treatment with potential controls on nitrogen, specifically nitrate, for groundwater protection. Possible WDR conditions for subsurface discharge would be based on beneficial use designations outlined in the Basin Plan for this groundwater basin. The DWTP lies at the boundary between the San Juan Valley sub-basin and the Hollister West sub-basin of the Gilroy Hollister Groundwater Basin. Beneficial uses for this groundwater basin include municipal and domestic water supply, agricultural water supply, and industrial water supply. Generally, regulation to meet domestic and agricultural supplies is sufficient, as industrial requirements vary dramatically. In addition, any water quality objectives set in the Basin Plan must be considered in determining effluent limits.

Subsurface dischargers are required to submit a Report of Waste Discharge (ROWD) to the RWQCB prior to any major modifications to a treatment process or capacity. Upon receipt of the ROWD, the RWQCB will revise and reissue the subject WDR. The RWQCB is required to consider all applicable regulatory requirements in setting new effluent standards in the revised WDR. As a result, the City can expect that a new WDR for discharge through infiltration will incorporate any new requirements set forth in the 1994 Basin Plan related to protection of groundwater quality.

Determination of discharge limits is evaluated by the RWQCB on a case-by-case basis and is not developed until a ROWD has been submitted. However, by reviewing recently drafted permits for similar basins, inferences can be made on possible discharge requirements. Recently, the Central Coast RWQCB drafted a revised WDR for the South County Regional Wastewater Authority (SCRWA), which treats effluent from the Cities of Gilroy and Morgan Hill. The draft was requested by the discharger to re-rate the capacity of the WWTP, which is a conventional secondary-level WWTP that uses percolation beds for discharge.

Since the beneficial use designations are similar, the effluent limitations in the draft WDR for the SCRWA can be reviewed as an example of the City's potential future effluent limits for discharge to percolation beds. Potential effluent limits for these water quality objective parameters have been adjusted in **Table 5-2** and **Table 5-3** to match anticipated water quality objectives for the Hollister area.

In addition, some effluent limits were established in the revised WDR for the IWTP. As a result, these limits may be reviewed as an indicator of likely standards in a revised WDR for the DWTP. Possible effluent limits for BOD, TSS, and nitrate (as Nitrogen) are summarized in **Table 5-2**, based on the SCRWA's draft WDR. Note that secondary treatment standards do not generally apply to land discharge in percolation beds; however, TSS and BOD removal can be required to protect beneficial use designations. These requirements were included in the draft SCRWA permit. Also, the nitrate limit of 5 mg/L corresponds to the expected nitrate limit in the RWQCB letter in **Appendix F**.

Table 5-2: Possible Effluent Limits for Percolation Beds Based on Draft WDR for SCRWA[a]

Constituent	Units	Daily Max	30-Day Mean	7-Day Mean
TSS	mg/L	—	30	45
BOD	mg/L	—	30	45
Nitrate	mg/L	5[b]	5	—

[a] WDR No. R3-2004-0099 NPDES No. CA0049964 WDID No. 3430100001 proposed for consideration at September 10, 2004 RWQCB meeting.
[b] This limit is based on a letter from the RWQCB, dated January 28, 2003 (Appendix F).

In addition to the draft SCRWA WDR, the IWTP WDR can also be used as a reference for likely effluent limitations to DWTP percolation beds. Possible effluent limitations based on water quality objectives and limitations included in the WDR for the IWTP are shown in **Table 5-3.** This includes limits for TDS, sodium, chloride, sulfate, and boron.

Table 5-3: Possible Effluent Limits for Percolation Beds Based on WDR for the IWTP[a]

Constituent	Units	12-Month Moving Average
TDS	mg/L	1,400
Sodium	mg/L	250
Chloride	mg/L	240
Sulfate	mg/L	250
Boron	mg/L	0.75-3.75

[a] WDR No. 90-90 (Appendix D).

5.2.2. Spray Field Discharge

Potential discharge requirements for land discharge by spray field generally require a minimum of secondary level of treatment. Unlike the discharge requirements for discharge by percolation, nitrogen limits might be less stringent, as indicated in **Table 5-1**. Potential impacts to the underlying groundwater by nitrified effluent could be mitigated by irrigating at crop-specific agronomic rates to avoid leaching nitrate into the groundwater. Possible WDR conditions for overland discharge of treated wastewater would be based on protection of the groundwater as outlined in the Basin Plan groundwater objectives for the Hollister sub-area in the Pajaro River sub-basin and California Code of Regulations (CCR) Title 22.

The Central Coast RWQCB has not adopted a specific Order outlining the requirements for discharge of treated wastewater over land. For the purpose of this evaluation, inferences are made from similar Orders in other RWQCB regions. Specifically, the San Francisco Bay RWQCB adopted Order 96-011, prescribing general water reuse requirements for municipal wastewater and water agencies.

This Order applies specifically to wastewater agencies that apply wastewater to land through irrigation for the primary purpose of discharge. It is distinguished from Title 22, which specifies statewide criteria for *use* of recycled water; Order 96-011 instead mandates criteria for *discharge* of wastewater to land, which may pose an identical degree of public exposure and risk. Possible WDR conditions based on the San Francisco Bay RWQCB Order 96-011 include:

- The treatment, storage, distribution, or reuse of recycled water shall not create a nuisance as defined in Section 13050(m) of the California Water Code.

- No recycled water shall be applied to irrigation areas during periods when soils are saturated.
- Recycled water shall not be allowed to escape from the designated use area(s) as surface flow that would either pond and/or enter waters of the state. Recycled secondary treated water shall not be allowed to escape from the designated use area(s) as an airborne spray that would visibly wet vegetation or any other surface.
- Spray or runoff shall not enter a dwelling or food handling facility, and shall not contact any drinking water fountain, unless specifically protected with a shielding device. If the recycled water is of restricted quality, then spray or runoff shall not enter any place where the public may be present during irrigation.
- Secondary recycled water shall not be applied so as to cause runoff or degradation of any water body or wetland.
- Recycled water shall not be applied in groundwater recharge and wellhead protection areas (so designated by local agencies).
- The use of recycled water shall not cause rising groundwater discharging to surface waters to impair surface water quality objectives or beneficial uses.
- The incidental discharge of recycled water to waters of the State shall not unreasonably affect present and anticipated beneficial uses of water, and not result in water quality less than that prescribed in water quality control plans or policies.
- No recycled water shall be discharged from treatment facilities, irrigation holding tanks, storage ponds, or other containment, other than for permitted reuse in accordance with this Order, other Board issued Waste Discharge Requirements (WDRs) or NPDES permits, contingency plan in an approved Water Reuse Program Notice of Intent (NOI) report, or for discharge to a municipal sewage treatment system.
- Recycled water shall not be used as a domestic or animal water supply.
- There shall be no cross-connection between potable water supply and piping containing recycled water. All users of recycled water shall provide for appropriate backflow protection for potable water supplies as specified in Title 17, Section 7604 of the CCR or as specified by DHS.

In general, there are limited water quality requirements for spray field discharge. Potential constituent limits for DO, sulfide, and coliform, as prescribed by Order 96-011, are summarized in **Table 5-4.**

Table 5-4: Possible Effluent Limits for Spray Fields[a]

Constituent	Units	Limit
Dissolved oxygen	mg/L	1.0
Dissolved sulfide	mg/L	0.1
Total coliform	Most probable number (MPN) per 100-mL	23 (7d median) [b] 240 (30d period) [b]

[a] San Francisco Bay RWQCB Order 96-011
[b] Limit for Secondary-23 Recycled Water (restricted use).

Based on CCR Title 22, effluent quality would, at a minimum, require disinfected secondary-23 recycled water. This requires effluent that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed values indicated in **Table 5-4**.

In terms of the Central Coast Basin Plan, potential spray field sites located within the Hollister sub-area would have to meet groundwater objectives for the Pajaro River sub-basin as summarized in **Table 5-5**.

Table 5-5: Possible Effluent Limits for Spray Fields Based on Basin Plan

Constituent	Units	Median values
TDS	mg/L	1,200[a]
Sodium	mg/L	200
Chloride	mg/L	150
Nitrate (as Nitrogen)	mg/L	5

[a] The City, San Benito County, and San Benito County Water District signed a Memorandum of Understanding (MOU) in December 2004 establishing a recycled water target TDS limit of 500 mg/L and establishing a maximum limit of 700 mg/L. The target year for implementing these TDS limits is 2015.

Numeric Limits for Groundwater Affected by Land Discharge

In addition to effluent limits, the WDR will likely include numeric limits relating to impacts to groundwater quality for several parameters. This includes prohibitions against impacts related to nitrate, coliform, taste, mineral constituents, organic constituents, and radionuclides as they pertain to municipal and domestic water supply. The WDR may also include limits to groundwater impacts for several metals to protect the agricultural irrigation use designation, as summarized in **Table 5-6**.

Table 5-6: Possible Metals Concentration Limits for Land Discharge

Constituent	12-Month Moving Average	Constituent	12-Month Moving Average
Aluminum	5.0 mg/L	Lithium	2.5 mg/L
Arsenic	0.1 mg/L	Manganese	0.2 mg/L
Beryllium	0.1 mg/L	Mercury	0.01 mg/L
Cadmium	0.01 mg/L	Molybdenum	0.01 mg/L
Chromium	0.10 mg/L	Nickel	0.2 mg/L
Cobalt	0.05 mg/L	Nitrite	10 mg/L
Copper	0.2 mg/L	Selenium	0.02 mg/L
Fluoride	1.0 mg/L	Vanadium	0.10 mg/L
Iron	5.0 mg/L	Zinc	2.0 mg/L
Lead	0.1 mg/L		

5.3. Discharge to Surface Water

Principal factors affecting effluent limitations for surface water discharge are the beneficial use objectives for the specific receiving body. In setting WDRs, the RWQCB will consider the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate water quality objectives. Depending on the present and potential beneficial uses, greater effluent restriction may be required for discharge to a receiving surface water body. For instance, a surface water body identified as a municipal and domestic supply would require a greater degree of protection than one identified solely for agricultural supply.

Surface water discharge will require the City to obtain a National Pollution Discharge Elimination System (NPDES) permit. This permit will require compliance with effluent discharge criteria based upon the CTR, National Toxics Rule (NTR), and local Basin Plan Water Quality Objectives. On March 2, 2000, the State Water Resources Control Board (SWRCB) adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, also known as the State Implementation Policy (SIP). The SIP established methods of evaluating receiving water criteria and developing effluent limitation in NPDES permits for the priority pollutants contained in the United States Environmental Protection Agency (USEPA) NTR.

The RWQCB is required to protect and enhance the beneficial uses of surface and ground waters in the region. As part of that effort, NPDES permits are adopted prescribing effluent limits for the types and

concentrations of chemical and physical constituents that can be safely discharged. To prepare appropriate NPDES permits, adequate characterization of the discharge effluent and the receiving waters are required.

Two types of surface water discharges are considered in this Section. The first is discharge to an inland surface water body, namely the San Benito River. For this receiving water body, the Basin Plan outlines general objectives for all inland surface waters plus specific requirements depending on the specific present and potential beneficial uses identified for the San Benito River. The second surface water discharge considered is to the Pacific Ocean via an ocean outfall. The following sections describe possible regulatory requirements for each receiving water body.

5.3.1. Discharge to the San Benito River

Potential discharge requirements for river discharge would most likely require tertiary level treatment. Existing language in the Basin Plan suggests surface water discharge for WWTPs to tributaries to the San Benito and Pajaro River is not recommended. Specifically, Chapter 4 of the Basin Plan Implementation recommends that the City retain the percolation beds. The same section further recommends that the City of San Juan Bautista, which currently discharges to a tributary to the Pajaro River, develop a land discharge system. Despite these recommendations, it should be noted that the Basin Plan does not specifically prohibit surface water discharges to these rivers.

At a minimum, tertiary-treated effluent would be required for discharge to the San Benito River based on inferences from draft permits for facilities discharging to similar water bodies. In 1998, a draft WDR/NPDES permit was prepared authorizing the SCRWA to discharge tertiary-treated effluent to the Pajaro River. The effluent limits set in the draft permit for SCRWA can be considered as an example of likely effluent limits for a surface water discharge from the City of Hollister to the San Benito River since the San Benito River is tributary to the Pajaro River.

Surface water discharges, like groundwater discharges, are subject to protection of beneficial use classifications, water quality objectives, and monitoring requirements. Since there are generally more beneficial use classifications for surface waters than groundwater, effluent limits are, in turn, generally more restrictive and include more constituents for surface water discharges. In addition, limits on other parameters must be set to comply with the CTR, as well as other CCR Title 22 pollutants. Furthermore, the SIP of the CTR includes significant increases in monitoring requirements.

Effluent sampling data for the San Luis Obispo NPDES permit application identified several priority toxic pollutants exceeding applicable SIP criteria resulting in a reasonable potential. These constituents include the three chlorine disinfection byproducts (DBPs) or trihalomethanes (THMs), chloroform, bromodichloromethane, and dibromochloromethane, and the plasticizer bis(2-ethylhexyl)phthalate. In some cases receiving water samples exceeded applicable criteria, resulting in a reasonable potential, thus requiring the establishment of effluent limitations. Constituents for which receiving water (Pajaro River) samples exceeded criteria include lead, thallium, aluminum and manganese. Aluminum and manganese are not priority toxic pollutants, however, they were evaluated as part of the reasonable potential analysis (RPA) as Basin Plan pollutants. Possible tertiary effluent limitations for a surface water discharge based on the WDR/NPDES permit for the SCRWA are shown in **Table 5-7**.

Table 5-7: Possible Effluent Limits for Surface Water Discharge to the San Benito River [a]

Parameter	Unit	Daily Max	30-Day Mean
BOD_5	mg/L	20	10
TSS	mg/L	20	10
Nitrate	mg/L	10	5

[a] Based on WDR No. R3-2004-0099 NPDES No. CA0049964 WDID No. 3430100001 proposed for consideration at September 10, 2004 RWQCB meeting.

Water quality objectives for the San Benito River are shown in **Table 5-8**. A surface water discharge permit would likely include a provision prohibiting discharge that could cause the San Benito River to exceed any of the objectives listed below.

Table 5-8: Water Quality Limits for the San Benito River [a]

Parameter	Units	Daily Average
TDS	mg/L	1,400
Chloride	mg/L	200
Sulfate	mg/L	350
Boron	mg/L	1
Sodium	mg/L	250

[a] Source: Central Coast Basin Plan.

In addition to the constituents above, it is likely that discharge conditions would require compliance with the MCLs indicated in **Table 5-9**. The MCLs are from the Basin Plan unless otherwise noted. Interestingly, compliance with these contaminant levels was required in the SCRWA permit for all of the effluent from the WWTP, including the secondary effluent discharged to the percolation beds. This is consistent with the Central Coast RWQCB's objective to protect the underlying groundwater basin. According to the Basin Plan, "When recharge of a useful groundwater basin occurs through stream channel recharge, impacts on groundwater quality must be considered."

Table 5-9: Maximum Contaminant Levels [a]

Organics	Primary MCL (mg/L)	Organics	Primary MCL (mg/L)
Alachlor (Alanex)	0.002 [c, d]	Heptachlor epoxide	0.00001 [b]
Atrazine (Aatrex)	0.003 [b]	Hexachlorobenzene	0.001 [c, d]
Bentazon (Basagran)	0.018 [b]	Hexachlorocyclopentadiene	0.05 [c, d]
Benzene	0.001 [b]	Lindane	0.004 [b], 0.0002 [c, d]
Benzo(a)pyrene	0.0002 [c, d]	Methoxychlor	0.03 [d]
Carbofuran (Furadan)	0.018 [b]	Methyl-tert-butyl ether (MTBE)	0.013 [d]
Carbon tetrachloride	0.0005 [b]	Molinate (Ordam)	0.02 [b]
Chlordane	0.0001 [b]	Monochlorobenzene[b] (Chlorobenzene)	0.030 [b]
2,4-D	0.1 [b], 0.07 [c, d]	Oxamyl	0.05 [d]
Dalapon	0.2 [c, d]	Pentachlorophenol	0.001 [c, d]
1,2-Dibromo-3-chloropropane (DBCP)	0.0002 [b]	Picloram	0.5 [c, d]
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.6 [c, d]	Polychlorinated biphenyls (PCBs)	0.0005 [c, d]
1,4-Dichlorobenzene (p-DCB)	0.005 [b]	Simazine (Princep)	0.010 [b], 0.004 [c, d]
1,1-Dichloroethane (1,1-DCA)	0.005 [b]	Styrene (Vinylbenzene)	0.1 [c, d]
1,2-Dichloroethane (1,2-DCA)	0.0005 [b]	2,4,5-TP[b] (Silvex)	0.01 [b]
1,1-Dichloroethylene (1,1-DCE)	0.006 [b]	2,3,7,8-TCDD (Dioxin)	$3x10^{-8}$ [c,d]
cis-1,2-Dichloroethylene	0.006 [b]	1,1,2,2-Tetrachloroethane	0.001 [b]
trans-1,2-Dichloroethylene	0.01 [b]	Tetrachloroethylene (PCE)	0.005 [b]
Dichloromethane (Methylene chloride)	0.005 [b]	Thiobencarb (Bolero)	0.07 [b], 0.001 [d]

Organics	Primary MCL (mg/L)	Organics	Primary MCL (mg/L)
1,2-Dichloropropane (Propylene dichloride)	0.005 [b]	Toluene (Methylbenzene)	0.15 [d]
Di(2-ethylhexyl)adipate	0.004 [b]	Toxaphene	0.005 [b], 0.003 [c, d]
1,3-Dichloropropene	0.0005 [b]	1,2,4-Trichlorobenzene	0.005 [d]
Di(2-ethylhexyl)phthalate (DEHP)	0.004 [d]	1,1,1-Trichloroethane (1,1,1-TCA)	0.200 [b]
Dinoseb	0.007 [c, d]	1,1,2-Trichloroethane (1,1,2-TCA)	0.032 [b], 0.005 [c, d]
Diquat	0.02 [c, d]	Trichloroethylene (TCE)	0.005 [b]
Endrin	0.0002 [b]	Trichlorofluoromethane (Freon 11)	0.15 [b]
Endothall	0.1 [c, d]	1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	1.2 [b]
Ethylbenzene (Phenylethane)	0.680 [b]	Total THMs	0.08 [c]
Ethylene dibromide [b] (EDB)	0.00002 [b]	Vinyl chloride	0.0005 [b]
Glyphosate	0.7 [b]	Xylenes (single isomer or sum of isomers)	1.750 [b]
Heptachlor	0.00001 [b]		

Maximum Contaminant Levels [a]

Inorganics	Primary MCL (mg/L)	Inorganics	Primary MCL (mg/L)
Aluminum	1 [b], 0.05 [c]	Nitrate [e] (as Nitrogen)	10 [c]
Antimony	0.006 [c, d]	Nitrate + Nitrite (sum as Nitrogen)	10 [c, d]
Arsenic	0.05 [b], 0.01 [c]	Nitrite (as Nitrogen)	1 [c, d]
Asbestos	7 MFL [c, d]	Selenium	0.01 [b]
Barium	1 [b]	Silver	0.05 [b]
Beryllium	0.004 [c, d]	Thallium	0.002 [c, d]
Cadmium	0.010 [b], 0.005 [c, d]	Fluoride [b]	
Chromium	0.05 [b]	Annual Average Maximum Daily ºFahrenheit (ºF)	
Copper	1.3 [c, d]	<53.7 ºF	2.4
Cyanide	0.15 [d]	53.8 to 58.3 ºF	2.2
Lead	0.05 [b], 0.015 [c, d]	58.4 to 63.8 ºF	2.0
Mercury	0.002 [b]	63.9 to 70.6 ºF	1.8
Nickel	0.1 [d]	70.7 to 79.2 ºF	1.6
Nitrate (as NO_3)	45 [b]	79.3 to 90.5 ºF	1.4
Radioactivity	**Primary MCL (picoCuries[pCi]/L)**	**Radioactivity**	**Primary MCL (pCi/L)**
Gross alpha particle activity	15 [c, d]	Strontium-90	8 [c, d]
Gross beta particle activity	50 [d]	Tritium	20,000 [c, d]
Combined Radium-226 and Radium-228	5 [c, d]	Uranium	30 [c], 20 [d]

[a] Units are in mg/L unless indicated otherwise.
[b] RWQCB Region 3 Basin Plan MCLs for irrigation.
[c] USEPA MCLs for drinking water.
[d] California DHS MCLs for drinking water.
[e] MFL – Million Fibers per Liter, with fiber length >10 microns.

In addition, the permit may include the following specifications or limitations:

- The discharge of effluent will likely be limited to winter months, such as October through April, and only to prevent overloading of the percolation beds.
- Turbidity limits equal to CCR Title 22 recycled water standards will likely be required, as follows:
    - Daily average turbidity must be less than or equal to 2 nephelometric turbidity units (NTU).

- Turbidity must be less than 10 NTU at all times.
- Turbidity must not exceed 5 NTU for more than 5% of the time.

- Coliform concentration limits will likely include the following:
  - 7-day median concentration of 2.2 MPN per 100 milliliter (mL).
  - Cannot exceed 23 MPN per 100 mL in more than one sample taken over a 30-day range.
  - Cannot exceed 240 MPN per 100 mL at any time.

If chlorine disinfection is used, the permit would likely require a minimum CT value (chlorine concentration times modal contact time) of not less than 450 mg-minute/L at all times and a minimum modal contact time of 90 minutes based on peak flow.

For general constituents, such as BOD, TSS, nitrates, and coliform, likely requirements for river discharge are summarized in **Table 5-10**.

Table 5-10: Possible Effluent Limits for River Discharge

Constituent	Units	Daily max	30-day mean	7-day mean
BOD	mg/L	20	10	–
TSS	mg/L	20	10	–
Nitrate	mg/L	10	5	–
Total coliform	MPN/100-mL	240	23	2.2

5.3.2. Out of Basin Export to Ocean Outfall

Potential discharge requirements for ocean discharge would most likely require secondary level treatment. Federal guidelines for secondary treatment apply to ocean discharges. The SWRCB's Water Quality Control Plan for Ocean Waters of California, known as the Ocean Plan, establishes effluent limits achievable by alternative processes, such as advanced primary treatment. The Ocean Plan contains water quality objectives, requirements for effluent quality, and management of waste discharges, and discharge prohibitions. Effluent quality requirements establish limitations for grease and oil, solids, turbidity, pH, and toxicity. Limits are established for heavy metals, toxaphene, and radioactivity outside the zone of initial dilution.

Table 5-11: Possible Effluent Limits for Ocean Discharge Based on City of Watsonville [a]

Constituent	Units	30d average	7d average	Daily maximum
BOD	mg/L	30	45	90
CBOD	mg/L	25	40	75
TSS	mg/L	30	45	90
Oil and grease	mg/L	25	40	75
Settleable solids	mL/L	1.0	1.5	30
Turbidity	NTU	75	100	225
pH	-	6.0 – 9.0 at all times		
Total coliform	MPN/100-mL	NA	NA	85,000
Fecal coliform	MPN/100-mL	NA	NA	17,000
Enterococcus	MPN/100-mL	NA	NA	2,000

[a] Source: Draft WDR Order R3-2003-0040.

Table 5-12: Possible Effluent Limits for Ocean Discharge to Protect Marine Aquatic Life [a]

Constituent	Units	6-mo. Median	Daily maximum	Instantaneous maximum
Arsenic	µg/L	430	2,500	6,500
Cadmium	µg/L	85	340	850
Chromium (hexavalent)	µg/L	170	680	1,700
Copper	µg/L	87	850	2,400
Lead	µg/L	170	680	1,700
Mercury	µg/L	334	14	34
Nickel	µg/L	420	1,700	4,200
Selenium	µg/L	1,300	5,100	13,000
Silver	µg/L	46	220	580
Zinc	µg/L	1,000	6,100	16,000
Cyanide	µg/L	85	340	850
Total chlorine residual	µg/L	170	680	5,100
Ammonia (as Nitrogen)	µg/L	51,000	20,000	510,000
Acute toxicity	TUa	-	2.8	-
Chronic toxicity	TUc	-	85	-
Phenolic compounds (nonchlorinated)	µg/L	2,600	10,000	26,000
Chlorinated phenolics	µg/L	85	340	850
Endosulfan	µg/L	.76	1.5	2.3
Endrin	µg/L	0.17	0.34	0.51
HCH	µg/L	0.34	0.68	1.0
Radioactivity	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the CCR.			

[a] Source: Draft WDR Order R3-2003-0040, City of Watsonville.

Table 5-13: Possible Non-Carcinogen Effluent Limits for Ocean Discharge a

Constituent	30d average [b]	Constituent	30d average [b]
Acrolein	1.9×10^4	4,6-dinitro-2-methylphenol	1.9×10^4
Antimony	1.0×10^5	2,4-dinitrophenol	340
Bis(2-chloroethoxy) methane	370	Ethylebenzene	3.5×10^5
Bis(2-chloroisopropyl) ether	1.0×10^5	Fluoranthene	1.3×10^3
Chlorobenzene	4.8×10^4	Hexachlorocyclopentadiene	4.9×10^3
Chromium (III)	1.6×10^7	Nitrobenzene	420
di-n-butyl phthalate	3.0×10^5	Thallium	170
Dichlorobenzenes	4.3×10^5	Toluene	7.2×10^6
Diethyl phthalate	2.8×10^6	Tributyltin	0.12
Dimethyl phthalate	7.0×10^7	1,1,1-trichloroethane	4.6×10^7

[a] Source: Draft WDR Order R3-2003-0040, City of Watsonville.
[b] Units are in mg/L unless indicated otherwise.

Table 5-14: Possible Carcinogen Effluent Limits for Ocean Discharge [a]

Constituent	30d average [b]	Constituent	30d average [b]
Acrylonitrile	8.5	1,2-diphenylhydrazine	14
Aldrin	1.9×10^{-3}	Halomethanes	1.1×10^4
Benzene	500	Heptachlor	4.2×10^{-3}
Benzidine	5.9×10^{-3}	Heptachlor epoxide	1.7×10^{-3}
Beryllium	2.8	Hexachlorobenzene	0.018
Bis(2-chloroethyl) ether	3.8	Hexachlorobutadiene	1.2×10^3
Bis(2-ethylhexyl) phthalate	300	Hexachloroethane	210

Constituent	30d average [b]	Constituent	30d average [b]
Carbon tetrachloride	76	Isophorone	6.2×10^{4}
Chlordane	2.0×10^{-3}	N-nitrosodimethylamine	620
Chlorodibromomethane	730	N-nitrosodi-N-propylamine	32
Chloroform	1.1×10^{4}	N-nitrosodiphenylamine	210
DDT	0.014	PAHs	0.75
1,4-dichlorobenzene	1.5×10^{3}	PCBs	1.6×10^{-3}
3,3'-dichlorobenzidine	0.7	TCDD equivalents	3.3×10^{-7}
1,2-dichloroethylene	2.4×10^{3}	1,1,2,2-tetrachloroethane	200
1,1-dichloroethylene	76	Tetrachloroethylene	170
Dichlorobromomethane	530	Toxaphene	0.018
Dichloromethane	3.8×10^{4}	Trichloroethylene	2.3×10^{3}
1,3-dichloropropene	760	1,1,2-trichloroethane	800
Dieldrin	3.4×10^{-3}	2,4,6-trichlorophenol	25
2,4-dinitrotoluene	220	Vinyl chloride	3.1×10^{3}

[a] Source: Draft WDR Order R3-2003-0040, City of Watsonville
[b] Units are in mg/L unless indicated otherwise.

For general constituents, such as BOD, TSS, nitrates, and coliform, likely requirements for ocean discharge are summarized in **Table 5-15**.

Table 5-15: Possible Effluent Limits for Ocean Discharge

Constituent	Units	30d average	7d average	Daily maximum
BOD	mg/L	30	45	90
TSS	mg/L	30	45	90
Nitrate	mg/L	NA	NA	NA
Total coliform	MPN/100-mL	NA	NA	85,000

5.4. Reclamation

5.4.1. General

The RWQCB and California DHS have primary responsibility for implementing recycled water projects in the State of California. However, under the Porter-Cologne Act, the DHS has authority to establish criteria for recycled water production, distribution, and use wherever special protection of public health is required. DHS has developed comprehensive recycled water regulations that define treatment processes, water quality criteria, and treatment reliability requirements for public use of recycled water. These regulations are contained in Title 22, Division 4, Chapter 3 of the California Administrative Code, more commonly referred to simply as Title 22.

Approved by the State in December 2000, Title 22 prescribes recycled water criteria, which are divided into several categories based upon the extent of public access or risk of exposure. In general, Title 22 regulations are more stringent for uses with high public contact potential and less stringent for uses with low public contact potential. Depending on the use, Title 22 establishes four levels of treatment required for recycled water, including undisinfected secondary, undisinfected secondary-23, undisinfected secondary-2.2, and disinfected tertiary.

Undisinfected Secondary Recycled Water. This category of recycled water is wastewater that has been treated to a secondary treatment level and is commonly referred to as secondary effluent. Secondary effluent is wastewater that contains DO and has undergone an oxidation process in which the organic matter content of the water has been stabilized and made nonputrescible.

Undisinfected Secondary-23 Recycled Water. This category of recycled water is secondary effluent that has been disinfected to a level such that the median number of coliform bacteria in the water does not exceed

23 per 100 mL. Disinfection is the process whereby pathogenic bacteria and virus are inactivated by chemical, physical, or biological means.

Disinfected Secondary-2.2 Recycled Water. This category of recycled water includes secondary effluent that has been disinfected to a level such that the median number of coliform bacteria in the water does not exceed 2.2 per 100 mL.

Disinfected Tertiary Recycled Water. This category of recycled water includes secondary effluent that has undergone tertiary treatment and has been disinfected to a level such that the median number of coliform bacteria in the water does not exceed 2.2 per 100 mL. Title 22 defines the tertiary treatment process as wastewater that has been oxidized, coagulated, clarified, and filtered. The recycled water turbidity should not exceed two NTU on average, should not exceed 5 NTU more than five percent of the time during any 24-hour period, and should never exceed 10 NTU.

5.4.2. Suitable Uses for Recycled Water

A summary of approved uses for various types of recycled water is presented in **Table 5-16**.

Table 5-16: Suitable Uses of Recycled Water [a]

Use of recycled water	Treatment Level		
	Tertiary	Secondary -2.2	Secondary -23
Irrigation of:			
Food crops—contact with edible portion of crop	Allowed	Not allowed	Not allowed
Parks and playgrounds	Allowed	Not allowed	Not allowed
School yards	Allowed	Not allowed	Not allowed
Residential landscaping	Allowed	Not allowed	Not allowed
Unrestricted access golf courses	Allowed	Not allowed	Not allowed
Any other irrigation uses not prohibited by other provisions of CCR	Allowed	Not allowed	Not allowed
Food crops – edible portion above ground. not in contact with reclaimed water	Allowed	Allowed	Not allowed
Cemeteries	Allowed	Allowed	Allowed
Freeway landscaping	Allowed	Allowed	Allowed
Restricted-access golf courses	Allowed	Allowed	Allowed
Ornamental nursery stock and sod farms	Allowed	Allowed	Allowed
Pasture for milk animals	Allowed	Allowed	Allowed
Any nonedible vegetation with access control to prevent use as if it were a park, playground, or schoolyard	Allowed	Allowed	Allowed
Orchards with no contact between edible portion and reclaimed water	Allowed	Allowed	Allowed
Vineyards with no contact between edible portion and reclaimed water	Allowed	Allowed	Allowed
Non-food bearing trees not irrigated <14 days of harvest	Allowed	Allowed	Allowed
Fodder crops (e.g., alfalfa) and fiber crops (e.g., cotton)	Allowed	Allowed	Allowed
Seed crops not eaten by humans	Allowed	Allowed	Allowed
Food crops that undergo commercial pathogen-destroying processing before human consumption (e.g., sugar beets)	Allowed	Allowed	Allowed
Supply for Impoundments:			
Nonrestricted recreational impoundment, with supplemental monitoring for pathogenic organisms	Allowed [b]	Not allowed	Not allowed
Restricted impoundment and fish hatcheries	Allowed	Allowed	Not allowed
Landscape impoundment. Without decorative fountains	Allowed	Allowed	Allowed
Supply for cooling or air conditioning:			
Industrial or commercial cooling or air conditioning with cooling tower, evaporative condenser, or a spraying that creates a mist	Allowed [c]	Not allowed	Not allowed
Nonrestricted recreational impoundment, with supplemental monitoring for pathogenic organisms.	Allowed [b]	Not allowed	Not allowed
Other uses:			
Flushing toilets and urinals	Allowed	Not allowed	Not allowed

Use of recycled water	Treatment Level		
	Tertiary	Secondary -2.2	Secondary -23
Priming drain tap	Allowed	Not allowed	Not allowed
Industrial process water that may contact workers	Allowed	Not allowed	Not allowed
Structural fire fighting	Allowed	Not allowed	Not allowed
Decorative fountains	Allowed	Not allowed	Not allowed
Commercial laundries	Allowed	Not allowed	Not allowed
Consolidation of backfill material around potable water pipelines	Allowed	Not allowed	Not allowed
Artificial snow making for commercial outdoor uses	Allowed	Not allowed	Not allowed
Industrial boiler feed	Allowed	Allowed	Allowed
Nonstructural fire fighting	Allowed	Allowed	Allowed
Backfill consolidation around nonpotable piping	Allowed	Allowed	Allowed
Soil compaction	Allowed	Allowed	Allowed
Mixing concrete	Allowed	Allowed	Allowed
Dust control on roads and streets	Allowed	Allowed	Allowed
Cleaning roads, sidewalks, and outdoor work areas	Allowed	Allowed	Allowed
Flushing sanitary sewers	Allowed	Allowed	Allowed

[a] Refer to full text of the current version of Title 22.
[b] Additional monitoring may be necessary with conventional treatment.
[c] Drift eliminators and/or biocides are required if public or employees can be exposed to mist.